IN THE CLAIMS

Claims 1 to 5 (withdrawn)

Claim 6 (currently amended) A method of producing a waveguide photodetector of a silicon-based material, comprising the steps of:

a/ depositing a metal layer on the top surface of a layer of the silicon-based material ~~layer~~ on an insulator ~~of a~~ substrate;

b/ etching to selectively remove unwanted regions of said metal layer; and

c/ heating said metal layer to induce a metal-silicon reaction to produce at least two laterally separated silicide regions extending from the top surface to the substrate, said at least two separate silicide regions forming opposite side walls of said waveguide photodetector, said silicide region regions acting as mirrors and electrodes for said waveguide photodetector.

Claim 7 (cancelled)

Claim 8 (previously amended) The method of producing a waveguide photodetector according to claim 6, wherein said silicon-based material is one of a group of materials comprising: silicon, amorphous silicon, silicon germanium, and amorphous silicon germanium.

Claim 9 (previously amended) The method of producing a waveguide photodetector according to claim 6, wherein said two separated silicide regions are produced using a metal belonging to a group of metals comprising: nickel, platinum, tungsten, and cobalt.

Claim 10 (previously amended) The method of producing a waveguide photodetector according to claim 6, wherein said silicon-based material layer is made of silicon and epitaxially grown silicon germanium superlattices.

Claim 11 (previously amended) The method of producing a waveguide photodetector according to claim 6, wherein said silicon-based material layer is made of silicon germanium allow and a layer of silicon.

Claim 12 (currently amended) A method of producing a waveguide photodetector of a silicon-based material, comprising steps of:

a/ forming a ridge in a silicon-based material layer on an insulator ~~of a~~ substrate and applying a mask on top of said ridge;

b/ depositing a metal layer on said silicon-based material layer of said substrate and said mask;

c/ heating said metal layer to induce a metal-silicon reaction to produce at least two laterally separated silicide regions extending downwardly from said mask to said substrate, said at least two separated silicide regions forming opposite side walls of said waveguide photodetector; and

d/ etching to selectively remove unwanted metal from said mask without affecting said at least two separated silicide regions, said silicide regions acting as mirrors and electrodes ~~detectors~~ for said waveguide photodetector.

Claim 13 (cancelled)

Claim 14 (previously amended) The method of producing a waveguide photodetector according to claim 12, wherein said silicon-based material is one of a group of materials comprising: silicon, amorphous silicon, silicon germanium, and amorphous silicon germanium.

Claim 15 (previously amended) The method of producing a waveguide photodetector according to claim 12, wherein said two separated silicide regions are produced using a metal belonging to a group of metals comprising: nickel, platinum, tungsten, and cobalt.

Claim 16 (previously amended) The method of producing a waveguide photodetector according to claim 12, wherein said silicon-based material layer is made of silicon and epitaxially grown silicon germanium superlattices.

Claim 17 (previously amended) The method of producing a waveguide photodetector according to claim 12, wherein said silicon-based material layer is made of silicon germanium alloy and a layer of silicon.